

(12) **United States Patent**
Ghassemzadeh

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(54) **DRILLING LOST CIRCULATION MATERIAL**

8/516 (2013.01); **E21B 21/003** (2013.01);
C09K 2208/08 (2013.01)

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(58) **Field of Classification Search**
None
See application file for complete search history.

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 21 days.

This patent is subject to a terminal disclaimer.

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(Continued)

Related U.S. Application Data

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(30) **Foreign Application Priority Data**

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(57) **ABSTRACT**

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C09K 8/506 (2006.01)
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An engineered composition for reducing lost circulation in a well includes a mixture of coarse, medium and optional fine particles, and a blend of long fibers and short fibers. The long fibers are rigid and the short fibers are flexible. The long fibers form a tridimensional mat or net in the lost-circulation pathway that traps the mixture of particles and short flexible fibers to form a mud cake. The mixture of particles and blend of fibers may be added to water based and oil-based drilling fluids. The composition, size, and concentration of each component of the mixture of particles and blend of fibers may be fine-tuned for each application.

(52) **U.S. Cl.**
CPC **C09K 8/035** (2013.01); **C09K 8/506** (2013.01); **C09K 8/5045** (2013.01); **C09K**

20 Claims, 2 Drawing Sheets

